

Transmitted by E-mail

April 12, 2010

Kevin Turner
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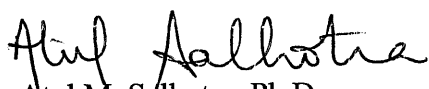
RE: LNAPL Recovery in Area A

Dear Mr. Turner

Attached is our work plan for the installation of a skimmer LNAPL recovery system in Area A. This version addresses your comments in your email of April 5, 2010 as well as selected suggestions made by the HWG. On behalf of Apex Oil, we are ready to implement this scope of work as soon as we get your approval.

We look forward to your approval of this scope of work.

Sincerely,



Atul M. Salhotra, Ph.D.
Project Manager
RAM Group of Gannett Fleming

C: Michelle Majack – U.S.EPA (via E-mail)
Kevin Dyer (E Mail)
Tom Mroz (E Mail)
John Frankenthal (E Mail)

**INSTALLATION OF LNAPL SKIMMER SYSTEM (AREA A)
WORK PLAN
APEX OIL COMPANY
HARTFORD, ILLINOIS**

1.0 INTRODUCTION AND OBJECTIVE

This work plan is for the installation of an LNAPL recovery skimmer well on the Apex property at 309 North Olive in Hartford, Illinois. The objective of installing this pilot skimmer well is to (i) remove LNAPL present in this area referred to as Area A, (ii) evaluate removal rates and the sustainability of LNAPL removal, (iii) evaluate the LNAPL capture zone, and (iv) estimate the change in LNAPL transmissivity over time.

Figure 1 shows the general location of the proposed skimmer well, double walled Lube Cube tank, spill response kit, fenced area and gates, home, garage, and the approximate property boundary at 309 North Olive.

2.0 FIELD PROCEDURES

All work will be conducted per our site health and safety plan (HASP) dated January 7, 2009. All necessary equipment required by the HASP will be available.

The following field activities will be completed for installation of the skimmer well system.

- Upon approval of the work plan by USEPA, Apex will meet with the Village of Hartford Fire Chief at the site and go over the final design and make any necessary adjustments. Apex has contacted the village and the Fire Chief, and they are aware of this plan and Apex has their preliminary approval. Further, Apex will contact the Illinois State Fire Marshall to obtain the regulations and get his approval if needed.
- Contact state one-call service (JULIE locate) about one week before the field work to mark locations of underground utilities at the surface.
- A field safety meeting will be held each day prior to any field work to go over health and safety issues in accordance with the site HASP and related to the planned field activities for the day.
- A registered certified geologist shall be present during all drilling activities in order to correctly record and perform the continuous logging of all bore holes.
- Advance borehole to approximately 50 feet below ground surface (ft bgs) using a truck-mounted auger rig.
- Soil will be continuously sampled in the boring, described, screened using visual, olfactory, and flame ionization detector (FID), and recorded on field boring logs.

- At least 3 soil samples will be selected from the boring for laboratory analysis based on the field screening. Additional samples will be collected for geotechnical analysis.
- A 4-inch diameter PVC groundwater monitoring well will be installed in the boring with at least 20 ft of screened interval with 0.020-inch slots for conversion as an LNAPL recovery skimmer well. A sand filter pack will be placed in the annular space of the well from the bottom of the boring to about 2 ft above the screened interval, followed by about 2 feet of hydrated bentonite seal, and then cement-bentonite grout to the surface. The surface completion will consist of a flush-mounted manway set in a concrete pad. The well will be developed by the drillers and the well depth gauged.
- An additional boring will be advanced near the skimmer well boring in order to obtain up to 3 soil samples for geotechnical testing from above and below the water table.
- All investigation-derived waste (IDW) will be containerized onsite until appropriate disposal is arranged.
- After waiting about one week for equilibration, the well will be gauged for LNAPL, groundwater, and well depth using an oil/water interface probe. The LNAPL thickness will be calculated. During this week, a bail down test will be conducted to estimate the LNAPL transmissivity.
- A QED automatic skimmer system will be installed in the well. The float and pump assembly will be set at a depth in the well to optimize recovery of LNAPL. The floating skimmer will have a total flight of up to 24 inches. The skimmer system will be operated pneumatically using a QED controller and electrically driven air compressor. The skimmer system will have three hoses exiting the top of the well consisting of an air supply line, liquid discharge line, and vent line. The air supply line will extend from the well head to the QED controller, to an air dryer, and then to the air compressor. The liquid discharge line will extend from the well head to the top (inlet) of a 500-gallon double-walled Lube Cube or equivalent tank. The tank will be equipped with two float valves (one for backup); either can shut off the well pump via the QED controller when the tank reaches 80% of its capacity to avoid over fills. Figure 2 presents a schematic of the skimmer system setup. Figure 3 shows the various pump models and specifications. The AutoGenie Model AG2424C SPG4 is the pump planned for the 309 N. Olive skimming operations. Heat tracing will be considered for above ground conveyance lines.
- The air compressor, air dryer, and QED controller will be located inside the existing garage for security, protection from adverse weather, and to mitigate compressor noise. The Lube Cube tank or equivalent will be double-walled; therefore, it will not require a spill containment structure.

- A spill response kit will be located inside a 55-gallon yellow plastic drum located between the Lube Cube tank and the skimmer well inside the fenced yard. The Hartford Fire Department will have access to the fence gate and spill response kit. The spill response kit will include absorbent pads, granular absorbent material, absorbent booms, and other materials and equipment for temporary containment of a spill until cleanup can be arranged.
- An 8-foot high privacy fence will be constructed to enclose a portion of the property. A double gate will be installed to access the yard with a vacuum truck from North Olive Street. A lock on the gate will be used to control access to the compound.

Every few days or as necessary, a vacuum truck will be used to empty the Lube Cube tank and transport the contents to a local recycler. The date and volume of LNAPL and water recycled will be documented.

- All field data and observations will be documented in the field notebook and on field data forms, as appropriate.

3.0 ANALYSIS OF SAMPLES

- Soil samples will be analyzed in the laboratory using USEPA method 8260B for VOCs and TPH-GRO and USEPA method 8270 for TPH-DRO and ORO.
- Soil samples collected for geotechnical purposes will include measurement of soil characteristic curves (water saturation as a function of capillary pressure) and hydraulic conductivity (to water).
- Continuous logging of the borings will be performed using FID.
- Boring logs will be prepared from the field logs.

4.0 DOCUMENTATION OF INSTALLATION

A memorandum will be prepared to present the field activities, system installation, data collection, laboratory results, evaluation, and our conclusions and recommendations.

5.0 OPERATION OF SKIMMER PUMP

For the first week of operation, daily monitoring and maintenance is planned. Subsequently, weekly monitoring and maintenance is planned, except during periods of freezing temperature when the system will be visited on a more frequent basis.

The following data will be collected during the operation of the skimmer well.

1. Initially, once a month selected wells within 100 ft radius will be gauged. Table 1 shows the wells within 100 ft of the skimmer well.

2. Initially, once a month the skimmer pump will be turned off for a day and wells within 100 ft of the pump will be gauged.
3. The amount of LNAPL recovered will be recorded on a weekly basis.
4. The above data will be used to estimate the zone of influence and the LNAPL transmissivity within the vicinity of the skimmer well. The latter will be estimated on a semi-annual basis.

The system at 309 North Olive will be very similar to the existing system located at the Birch Street compound. Therefore, the monitoring and maintenance activity details will be the same as those applicable to the Birch Street system presented in the Hartford Working Group, Skimmer Pump and Lube Cube LNAPL Recovery System Operating, Maintenance and Monitoring Manual (URS Corporation, March 2009). This manual will be updated to include the 309 N. Olive specifics.

6.0 SCHEDULE AND FUTURE ACTIVITIES

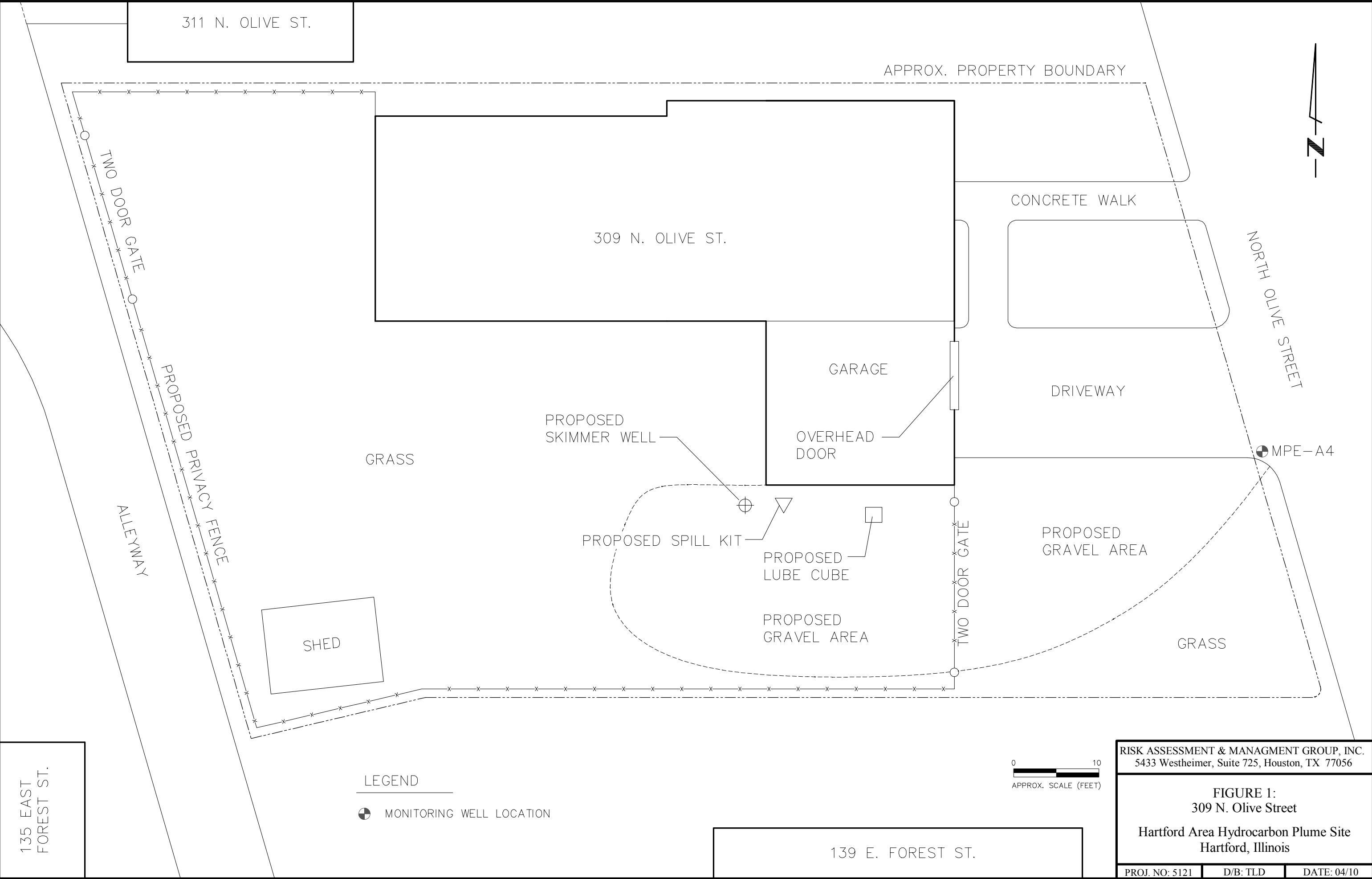
RAM Group on behalf of Apex Oil is ready to implement this plan as soon as we receive approval of USEPA. Preliminary discussions, that have been very positive, have been conducted with the mayor of Hartford as well as the Fire Chief. As soon as we receive USEPA's approval, Apex Oil representative(s) will have a meeting with the Fire Chief and the mayor, if necessary, to discuss the specific details of this proposal and to get their concurrence.

Based on the results and operation of this system, future activities will include some or all of the following:

1. Installation of another skimmer well at an appropriate location.
2. Installation of monitoring wells to evaluate radius of capture.
3. Installation of skimmer equipment in an existing well. (e.g., MPE-A3, located approximately 30 ft north-northwest of the southeast property corner at 309 N.Olive).
4. Application of vacuum on the skimmer well to enhance flow of liquid hydrocarbons into the well. This will also generate hydrocarbon vapors that will either be treated using an activated carbon system or tied to the existing vapor collection system (VCS).

A work plan for items 2 and 3 above will be presented to the Agencies within three weeks of the installation of the LNAPL skimmer system.

Attachments: Figures 1, 2 and 3
Table 1



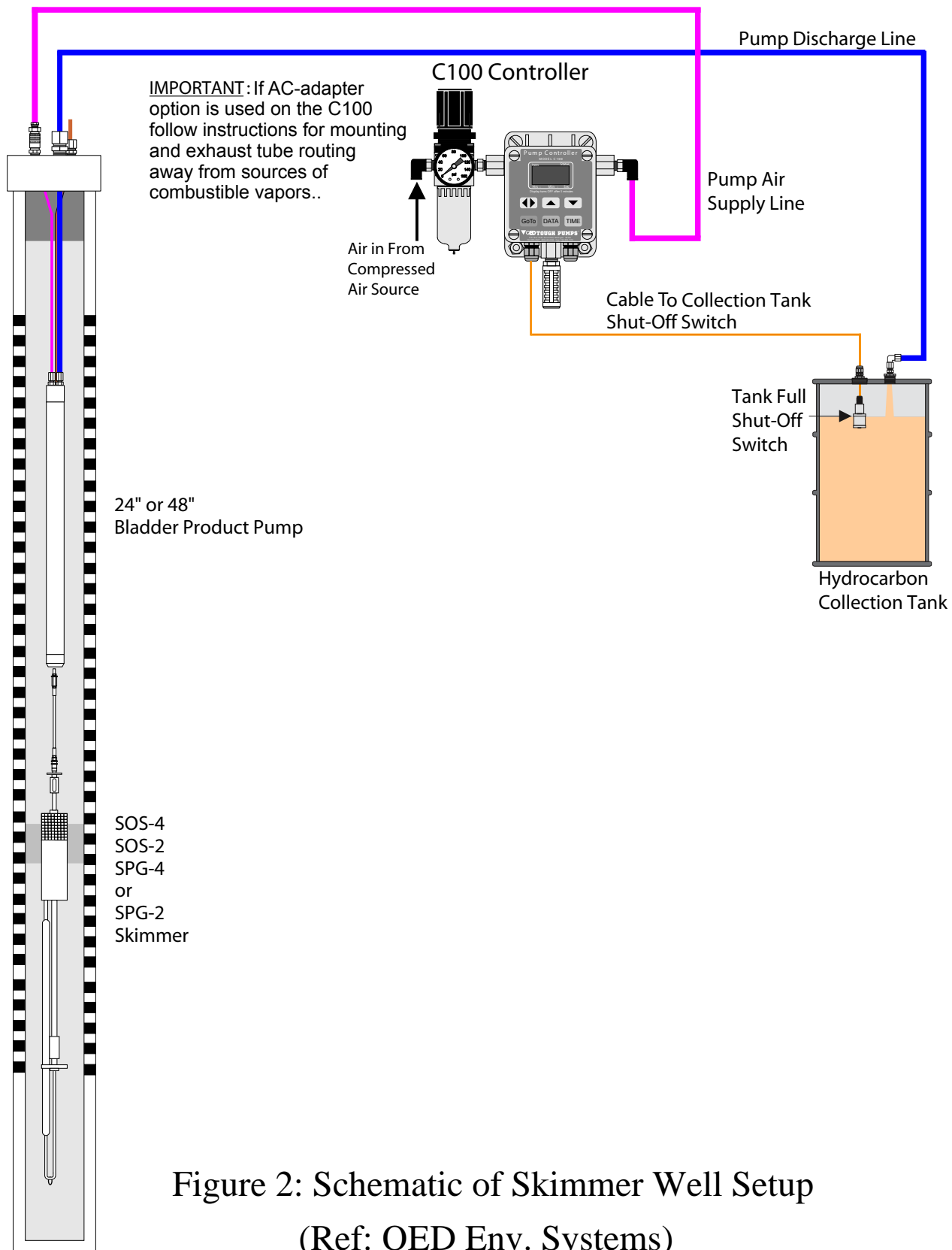


Figure 2: Schematic of Skimmer Well Setup
(Ref: QED Env. Systems)

4" SPG4 AutoGenie™

4" SPG AutoGenie™ Skimmers

The 4" SPG4 AutoGenie™ is a safe, reliable and complete system for removing free product layers from wells. The 4" SPG4 AutoGenie system consists of an air-powered pumping unit with a floating inlet that tracks changes in the water level. The SPG float uses specific gravity to avoid water intake and includes multiple inlet hole positions to allow fine-tuning of the inlet level as the floating layer thickness is reduced. The special Genie bladder pump with high suction capacity delivers proven reliability and durability. The AutoGenie uses an integral pneumatic timer to control the bladder pump fill and discharge times. A complete line of matched accessories is available to help installation and performance, including in-well tubing, well caps, LNAPL collection tank full shutoffs and other items.

Warranty

SPG4 AutoGenies are warranted for one (1) year.

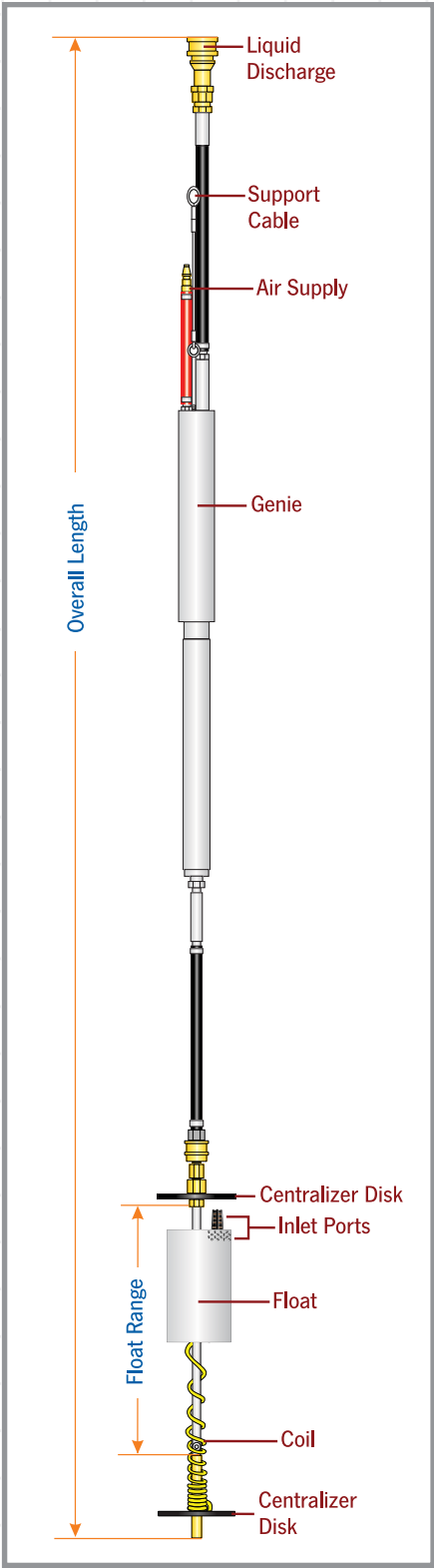
Advantages

1. Specialized bladder pump is extremely durable, provides high suction to maintain flow, and eliminate contact of drive air with pumped fluid.
2. Continuous, automatic operation that is 100% air powered.
3. Available in a range of flow rates and float travel ranges.
4. Low air consumption.



Figure 3: Skimmer Pump Models & Specifications
(Ref: QED Env. Systems)

4" SPG4 AutoGenie™



The 4" SPG4 AutoGenie™ is available in 8 different models with varying inlet float travel ranges and pumping rates. Why so many options? QED has found that each free product site and well can have its own challenges in terms of well depth, liquid column depth, water level fluctuation and desired LNAPL pumping rate. For example, the model with the longest pump and float travel range may be too long for some wells. Check the dimensions and flow rates below, or just call QED to help select the best match for your project.

Specifications

AutoGenie Model	Maximum LNAPL Recovery Rate*	Float Travel Range	Overall Length	Minimum Liquid Column
AG2424L SPG4	160 gpd (605 Lpd)	24 in. (61 cm)	124 in. (315 cm)	31 in. (79 cm)
AG2424C SPG4	160 gpd (605 Lpd)	24 in. (61 cm)	109 in. (277 cm)	15 in. (38 cm)
AG2445 SPG4	160 gpd (605 Lpd)	45 in. (114 cm)	129 in. (329 cm)	15 in. (38 cm)
AG2460 SPG4	160 gpd (605 Lpd)	60 in. (152 cm)	145 in. (368 cm)	16 in. (41 cm)
AG4824L SPG4	320 gpd (1,211 Lpd)	24 in. (61 cm)	148 in. (376 cm)	31 in. (79 cm)
AG4824C SPG4	320 gpd (1,211 Lpd)	24 in. (61 cm)	133 in. (338 cm)	15 in. (38 cm)
AG4845 SPG4	320 gpd (1,211 Lpd)	45 in. (114 cm)	153 in. (389 cm)	15 in. (38 cm)
AG4860 SPG4	320 gpd (1,211 Lpd)	60 in. (152 cm)	169 in. (429 cm)	16 in. (41 cm)

Minimum Well ID	4 in. (10 cm)
Maximum OD	3.79 in. (9.63 cm)
Maximum Depth	150 ft. (45.7 m)
Air Supply Pressure (min/max)	40/100 psi (2.7/6.9 bar)
LNAPL Fluid Density	< .85 SG
Kinematic Viscosity	1-1000 centistokes
Recommended Initial LNAPL Layer	> 3 in. (> 7.6 cm)
Residual LNAPL Layer	≥ 0.25 in. (.64 cm)
Suitable Types of LNAPL	Gasoline, diesel, jet fuels, kerosene, #2 - #5 fuel oils, light weight motor oil and hydraulic fluid
Materials	Brass, Tygon®, stainless steel, Viton®, Teflon®
Fitting Type	Quick-connect
Hose or Tubing	Both are available

Tygon is a registered trademark of Saint Gobain - Norton. Viton is registered trademark of DuPont Dow Elastomers.
Teflon is a registered trademark of Dupont.
* gpd = gallons per day, Lpd = liters per day

Figure 3 (Contd.): Skimmer Pump Models & Specifications
(Ref: QED Env. Systems)

Table 1
Wells Located Within 100 ft of the Proposed Skimmer Well near 309 N.Olive St.
Apex Oil, Hartford, Illinois

Well	Strata	Date Installed	Dia (inch)	Screen Length (1st to last slot) (ft)	Depth to top of Screen (bgs to 1st slot) (ft)	Elevation above MSL (ft)			No. of Measurements		Frequency of LNAPL (%)	Apparent LNAPL thickness (based on LNAPL observed) (ft)		
						Surface Elevation	Top of Casing	Well Bottom	Gauged*	LNAPL [†] observed		Min.	Max.	Avg.
VMP-070VS	A Clay	1/3/2005	0.5	0.5	4.5	431.4	431.39	NA	NA	NA	NA	NA	NA	NA
VMP-070S	N.Olive	1/3/2005	0.5	0.5	12.5	431.4	431.39	NA	NA	NA	NA	NA	NA	NA
VMP-70M	Rand	1/3/2005	0.5	0.5	19.5	431.4	431.39	NA	NA	NA	NA	NA	NA	NA
HMW-020	Multiple Strata	3/25/1991	2	15.3	27	431.34	430.65	388.60	160	160	100	0.39	7.84	1.72
MP-137	Main Sand	3/12/2008	2	14.69	27.86	429.79	429.5	386.89	46	45	98	0.01	11.26	5.03
MPE-A003		3/14/2008	4	19.45	27.93	430	426.89	382.13	70	69	99	1.11	11.07	5.24
MPE-A004		3/27/2008	4	19.41	28.93	429.47	427.53	380.6	70	70	100	0.05	13.25	5.38

Notes:

* - Includes 'Dry' well

† - Corresponds to Sheen (zero ft) or minimum thickness of 0.01 ft

NA - Not Available